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BEEBLET

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THE BBC/ACORN COMPUTER GROUP OF NZ INC

NEWSLETTER

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EDITORIAL

HeeeLP!

The wind is howling through the rigging, the waves are mounting - the full force of the storm is about to hit. A crisis is nigh! Nothing to do with those yachts parked (always upsets the yachties) out in Evan's Bay however. As I sit here in the wee small hours, pecking at the keyboard and listening to the storm, I am wondering where on earth (or water for that matter) I am going to find enough material for an August edition of Beeblet (or perhaps 'CORNUCOPIA, as one member suggested in the light of our name change - think about it, aloud). A great deal of material is being supplied by a small number of contributors and although I have good articles and programs left over from this issue, what on earth is everyone else doing? Programs (so long as they are well written and avoid bad programming habits, as evidenced by the use of eg. GOTOs) and articles do not have to be large and scintillating - the newsletter is for YOU to share your ideas and experiences with the rest of the group. Still, if all else fails, I'll still consider the odd cybernetic masterpiece for publication. YOU HAVE BEEN WARNED!!

Paul Davidson of Capcon (who use a Beeb for graphics and captioning in TV and video programs) has mentioned to me that his team have done some interesting work for the Asthma Foundation as part of a TV programme commissioned for asthma awareness week. The program, to be broadcast at 4-15 on Sunday 22nd July on TV2, uses Beeb derived charts graphs and animation of lung physiology.

Murphy's Law: For those of you still unfamiliar with with the contribution of one of the most profound thinkers of our time to our understanding of the behaviour of inanimate objects (including computers), the Law, on the simplest level, may be expressed as follows: "If anything can go wrong, it will". Some of the more concrete manifestations of this phenomina will no doubt be familiar :

-the more innocuous a design change appears, the further its influence will extend

-technical specifications are always expressed in the least usuable terms. Velocity, for instance, will be expressed in furlongs per fortnight

-humanity's intelligence quotient is constant : the population is increasing

Beeblet is edited by Bruce Wills who may sometimes be tracked down on 861-662(h) or 720-030 x454 (wk).

Disclaimer: The views of reviewers, the Editor and other contributors are not necessary shared by the BBC Microcomputer User Group of NZ Inc (or the BBC/Acorn Computer Group of NZ Inc as it is to be known).

DISK FILE DUMP 11

- A CORRECTION

MURPHY'S LAW RIDES AGAIN! And either your Editor is turning into an inanimate object, or THE LAW has ramifications not previously properly explored. To cut a long irrelevence short, the June Beeblet (page 26) contains what purported to be a swept-up disk file dump. It wasn't - my apologies to Gavin F. The correct listing is as follows:

```
   10 REM  PRNTFLD
   20 REM  Print fields from selected pa
rts of a disc file
   30 REM  Pressing space bar while runn
ing, will cause the program to
   40 REM  prompt for a new byte off_set
.
   50 REM  The program assumes that stri
ngs only contain printable
   60 REM  characters (&20 to &7E) - Thi
s is used to ignore 'spurious' strings.
   70 ON ERROR REPORT: PRINT" @ line ";E
RL: CLOSE#0: STOP
   80
   90 INPUT"Filename ? "F$
  100 C%=OPENIN(F$)
  105 last_byte_in_file%=EXT#C% - 1
  110 PROC_accept_offset
  120 @%=&01000A0A
  130 REPEAT
  140   *FX15,1
  150   PROC_get_next_field
  160   IF POS THEN PRINT
  170   IF F% THEN PRINT "&";~P%;" ";V$;
" (";A$;")"
  180   IF ADVAL(-1) THEN PROC_accept_of
fset
  190   UNTIL EOF#C%
  200 PRINT"EOF on file ";F$;" @ &";~las
t_byte_in_file%
  210 @%=&90A
  220 CLOSE#C%
  230 END
  240
  250 DEF PROC_accept_offset
  260 LOCAL A$
  270 *FX15,1
  275 PRINT TAB(7);"Byte offset within f
ile [&0 TO &";~last_byte_in_file%;"] ";
  280 INPUT A$
  290 IF A$="" THEN A$="0"
  300 PTR#C%=EVAL("&"+A$)
  310 ENDPROC
  320
  330 DEF PROC_get_next_field
  340 F%=FALSE
  350 X%=BGET#C%
  360 REPEAT
  370   P%=PTR#C% - 1
  380   Y%=BGET#C%
  390   IF X%=&00 AND Y%)&00 THEN PROC_s
tring_or_maybe_integer_or_real
  400   IF (X%=&40) AND (NOT F%) THEN F%
=TRUE: V$="I": PTR#C%=P%: INPUT#C%,A%: A
$=STR$(A%)+" / &"+STR$~(A%)
  410   IF (X%=&FF) AND (NOT F%) THEN F%
=TRUE: V$="R": PTR#C%=P%: INPUT#C%,A: A$
=STR$(A)
  420   IF NOT F% THEN PRINT"  ";~X%DIV1
6;~X%MOD16;
  430   X%=Y%
  440   UNTIL F% OR EOF#C% OR ADVAL(-1)
  450 ENDPROC
  460
  470 DEF PROC_string_or_maybe_integer_o
r_real
  480 LOCAL I%,ok%,R%
  490 A$=""
  500 ok%=TRUE
  510 I%=1
  520 REPEAT
  530   R%=BGET#C%
  540   IF R%)&1F AND R%(&7F THEN A$=CHR
$(R%)+A$ ELSE ok%=FALSE
  550   I%=I%+1
  560   UNTIL I%)Y% OR EOF#C% OR NOT ok%
  570 IF EOF#C% AND I%(=Y% THEN ok%=FALS
E
  580 IF ok% THEN F%=TRUE: V$="S": ELSE
A$="":PTR#C%=P%+2
  590 ENDPROC
```

ACCESSING THE DISK MENU

Tim R. Wellington.

When I first saw the directory designation for the BBC disk drive naming conventions I thought oh great - that will make it easy to do disk menus within programs. All that will need to be done is to put the names of the programs to be accessed in one directory, then use the following:

```
*CAT dir$
```

Unfortunately that instruction does not exist !

To get around this problem I decided to write my own version which would allow the user to call up the catalogue of any menu on any drive. The syntax used is:

```
CALL &1100,drive%,dir$
```

Where &1100 is where the program assembles to, drive% is the drive number that the required catalog is on, and dir$ is the directory name.

For example:

`menu%=&1100:drive%=0:dir$="G":CALL menu%,drive%,dir$` might call up the directory of all the games on drive zero.

The program does not clear the screen, or use TAB at all. The idea of this being that you can then format the screen in any way you choose.

The program works as follows:
1. The catalog is loaded in off disk
2. A search is made through the catalog for each occurance of the required directory
3. For each copy of dir$ found, the associated name is printed against a MENU designation where the possible designations are 1-9, A-Z.

Note that each MENU entry is padded out to twenty spaces so that on MODE 7 there are two entries per line, in MODE 3 there are four, etc.

At the moment, of course, this is not very useful as there is no way to access any of the programs in the menu except by the use of the standard technique:

```
A$=GET$
```

```
IF A$="1" THEN CHAIN "filename1"
IF A$="2" THEN CHAIN "filename2"
etc...
```

which defeats the purpose of the whole exercise - namely to avoid having to designate the filenames required, yourself!

However, never fear beause I intend to have a program ready next month to add to this one, which will allow you to access the names in the menu without all that chaining.

A NEW ELECTRON USER

H. Wiggins   Wellington.

I have had a CPI OSI computer for some 18 months and have managed to get it going on radioteletype, so that this has given me some introduction to microcomputers. It became apparent that there were more up to date machines (Attention Dealers: Advertising DOES pay... Ed.) available. I heard that the BBC computer was good but that the New Zealand price was too much for domestic use for a retired person. All computers looked at had major disadvantages, not the least being the New Zealand prices.

I boldly bought one of the first Electron computers to arrive in Wellington. It proved to be well advanced for the price, and the BASIC will take a long time to get used to. The biggest drawback was found to be the very high price and low quality of programs available. Since I am not greatly interested in games this is Lenten fare indeed. The two graphics programs were not available or did not have the associated books, and the $40-00 price was excessive. I purchased various program books. Typing was tedious especially because it is not easy to save bad programs on this machine, and the errors are not too simple to locate in such a new language.

The Electron has no facilities to print out at 300 baud, which is the speed of my printer (Extel -Ed.), and has no output port anyway. I was referred to articles appearing in February and March issues of Electronics and Computing, which describe an RS432 interface. It is very difficult to build this on Veroboard, which I did anyway. The circuit diagram was incorrect in that the supply voltageg on one of the integrated circuits was reversed. Advice : get copies of the data on all ICs. Even then, the circuit only worked from keyboard to printer and back, the article saying that it should not be too difficult to desidn software to suit any application. Sorry mate.

In summary, an incomplete machine with no access to the outside world, with inadequate and overpriced software. However, I may be able to get help from the User Group (... that's us, attention people ! -Ed.) The computer is full of promise, provided these difficulties can be overcome.

```
  10 REM MENU BY TIM RYAN
  20 temp0=&70:instr_block%=&72:OSWORD=&FFF1:OSWRCH=&FFEE
  30 FOR option=0 TO 2 STEP 2
  40   P%=&1100:sector%=&1400
  50   [OPT option
  60   \ ***************************************************************
  70   \ **                                                           **
  80   \ **        DISPLAYING MENUS FROM SINGLE DIRECTORIES           **
  90   \ **                        BY TIM RYAN                        **
 100   \ **                                                           **
 110   \ ***************************************************************
 120   \
 130   \ USE THIS PROGRAM TO DISPLAY ALL THE FILES THAT HAVE BEEN SAVED
 140   \ UNDER ANY PARTICULAR DIRECTORY NAME
 150   \ CALL IT BY USING THE FOLLOWING BASIC CODE:
 160   \
 170   \ CALL &1100,drive%,dir$
 180   \
 190   \ WHERE drive% IS AN INTEGER VARIABLE HOLDING THE REQUIRED DRIVE (0-3)
 200   \ AND dir$ IS A STRING HOLDING THE NAME OF THE DIRECTORY (WHICH CAN BE
 210   \ ANY NAME BUT # * . OR THE COLON)
 220   \ MEMORY USAGE:
 230   \ ZERO PAGE LOCATIONS= &70-1=temp0, &72-&81=instr_block%
 240   \ PROGRAM LOCATIONS= &1100-&120E, &1400-&14FF
 250   \
 260   \
 270   \ ****************************************************************
 280   \ ********            PROGRAM STARTS HERE                 *******
 290   \ ****************************************************************
 300   \
 310   \ SET UP PARAMETER BLOCK TO READ THE DIRECTORY
 320   \
 330   PHA:TXA:PHA:TYA:PHA                        \ SAVE ALL REGISTERS
 340   LDA &603:CMP #4:BEQ num_int                \ DRIVE PARAM = INTEGER ?
 350   BRK
 360   ]
 370   $P%=" Drive parameter must be an integer":P%=P%+35
 380   [OPT option
 390   BRK                                        \ BRK IS END OF ERROR MSSG
 400   .num_int
 410   LDX #0
 420   LDA &601:STA temp0:LDA &602:STA temp0+1    \ FIRST PAR FROM CALL=DRIVE
 430   LDA (temp0,X)
 440   CMP #4:BPL no_go
```

```
450 CMP #0:BPL num_ok
460 .no_go
470 BRK
480 ]
490 $P%=" No such drive":P%=P%+14
500 [ OPT option
510 BRK
520 .num_ok
530 STA instr_block%                             \ DRIVE# (0 <= X <= 3)
540 LDA #sector% MOD 256:STA instr_block%+1
550 LDA #sector% DIV 256:STA instr_block%+2      \ ADDR TO READ SECTOR TO
560 LDA #255:STA instr_block%+3:STA instr_block%+4
570 LDA #3:STA instr_block%+5
580 LDA #&53:STA instr_block%+6                  \ READ SECTOR INSTRUCTION
590 LDA #0:STA instr_block%+7:STA instr_block%+8 \ TRACK AND SECTORS ARE 0
600 LDA #&21:STA instr_block%+9                  \ READ ONE 256 BYTE SECTOR
610 LDX #instr_block% MOD 256:LDY #instr_block% DIV 256
620 LDA #&7F:JSR OSWORD
630 LDA instr_block%+10
640 CMP #0:BEQ read_ok                           \ READ WAS SUCCESSFUL ?
650 BRK
660 ]
670 $P%=" Disk read error":P%=P%+16
680 [OPT option
690 BRK
700 \
710 \ THE DIRECTORY IS NOW IN MEMORY SO IT MUST BE ACCESSED
720 \
730 .read_ok
740 TAY
750 LDA &604:STA temp0:LDA &605:STA temp0+1
760 LDA (temp0),Y:TAX:INY:LDA (temp0),Y          \ ADDR POINTS TO INFO BLOCK
770 STA temp0+1:STX temp0                        \ WHICH POINTS TO STRING
780 DEY:LDA (temp0),Y:STA temp0                  \ GET TARGET DIRECTORY NAME
790 LDY #255:LDX #0:STX temp0+1                  \ LAST DIR NAME IN SECTOR
800 .loop
810 LDX temp0+1:INX                              \ COUNTER OF MENU NUMS
820 LDA sector%,Y
830 CMP temp0:BNE next_dir                       \ IS THE DIR NAME OK ?
840 LDA #ASC"(":JSR OSWRCH                       \ PRINT THE DIRECTORY ENTRY
850 LDA #&30
860 CPX #10:BMI number                           \ THE MENU GOES 1-9,A-Z
870 LDA #&37
880 .number
890 STX temp0+1:CLC:ADC temp0+1
900 JSR OSWRCH                                   \ PRINT OPT # OR LETTER
910 LDA #ASC")":JSR OSWRCH
920 LDX #18
930 LDA #ASC" "
```

```
 940 .clear
 950 STA instr_block%-1,X                         \ CLEAR SPACE
 960 DEX:BNE clear
 970 LDX #7
 980 TYA:PHA
 990 .name
1000 DEY
1010 LDA sector%,Y:STA instr_block%+2,X           \ XFER BYTE OF NAME TO LINE
1020 DEX:BNE name
1030 .write
1040 LDA instr_block%,X:JSR OSWRCH                \ WRITE THE LINE ON SCRN
1050 INX:CPX #17:BNE write
1060 PLA:TAY
1070 .next_dir
1080 TYA:SEC:SBC #8:TAY                           \ LOOK FOR NEXT DIR
1090 CMP #7:BNE loop                              \ FIRST 8 BYTES=DISK NAME
1100 PLA:TAY:PLA:TAX:PLA                          \ CORRECT ALL REGISTERS
1110 RTS
1120 ]
1130 NEXT
1140 END
```

CLASSIFIED ADS

(Free to User Group members)

Cassette leads to allow motor control (ie 7 pin DIN to 3 jacks): $5-00 plus 50c p&p. Phone Kevin Wgtn 845-243 or write C/- Box 9592 Wgtn.

Tapes C-10s, boxed, leaderless - available from the User Group in multiples of 20 : $24-00 plus $2-00 p&p.

Diskettes, DS DD, available through the User Group in boxes of 10 : $40-00. Arriving in about 2 weeks.

Logitec printer cassettes - available through the User Group, $18-00.

For sale - One Microline printer with BBC printer port cable. This is a matrix printer, but its graphics capabilities are limited to block graphics. Phone Tim Ryan, 687-558 Wellington.

DISKS ARE MORE THAN FAST TAPE!

G.C.F.

For many of us, the aquisition of disk drives is seen as a way to speed up loading and saving of programs, and so the disk drive is treated as a fast tape. If you haven't bothered much with the disk manual, you may be missing out on some even quicker tips:

1. If you have two or more disc sides available you may have been entering *DRIVE 2 <RETURN> LOAD "program_name" <RETURN>
There is a quicker way :
LOAD "2.program_name" <RETURN>
The colon plus the drive number as part of the file name works, but the computer still assumes that drive 0 is the default drive (unless you have done a *DR. to change that).
Likewise, if you want a catalogue of a different drive, enter *.2 for Drive 2, or *.3 for Drive 3 etc.

2. DIRECTORIES :
The limitation of 7 character file names can be got around by using directories, provided that you are consistent. Some examples: on one disc you may have programs on a variety of topics. You could prefix all games with a directory "G", all the Kindergarten files with "K" etc, and by specifying the Directory, on a catalogue all those within the specified directory will appear without a directory prefix. Again, if you want a file from a different directory, you do not have to change directory before loading in the file.

At the extreme then, if you are currently on Drive 3 and Directory K, and want to get a file on Drive 1 Directory $ you type in:
LOAD":1.$.prog_name"<RETURN>

Believe it or not, all this applies to saving as well!
SAVE "1.G.SQUELCH" for the latest game typed in from some mag.

SPIROGRAPH

Neville T.

Inspiration for the following program came from a plastic "Spirograph" set I used to own. The program was developed to run on a Mode 4 screen.

Notes:

line 10 - move the screen display down one line (this centers the display vertically on my TV).

line 20 - dimension two arrays to hold the X and Y coordinates of points on the circle to draw lines from.
line 50 - move the screen display horizontally using register 2 of the 6845 CRTC (see article in Beeblet February 1984). This centres the display horizontally on my TV.
lines 60-80 - set up the two arrays.
lines 90-130line 150 - increase the line length, or if finished, flash the colours forever.

- To get a circle, alter line 120 to read:
120 DRAW DX(I+J)*4-80,DY(I+J)*4-80

- To get a smaller circle, change the *4 in lines 110 to 120 eg. changing to *2 will give a circle half the size in the lower left hand screen corner.

```
    5 REM Spirograph     N. Tomlinson March 84
   10 *TV255
   20 DIMDX(71),DY(71)
   30 MODE1:VDU23;8202;0;0;0;
   40 VDU19,3,4;0;
   50 VDU23;2,92;0;0;0;
   60 FORBN=9TO30STEP9:DI=360/BN:FORI=0TOBN-1
   70      DX(I)=160-SIN(I*DI*PI/180)*100:DX(I+BN)=DX(1)
   80      DY(I)=160-COS(I*DI*PI/180)*100:DY(I+BN)=DY(I):NEXT
   90    CLS:FOR J=1TOBN/2:FORI=0TOBN-1:COL=J MOD4
  100        GCOL0,COL
  110        MOVEDX(I)*4-80,DY(I)*4-80
  120        DRAWDX(I+J)*4-30,DY(I+J)*4-80
  130        NEXT,
  140      FORK=1TO500:NEXT
  150      IFBN=27THENREPEAT:VDU19,RND(2)+1,RND(7);0;:FORK=0TO1000:NEXT:UNTIL0 EL
SE NEXT
```

Mailbag

David F. of Taupo writes..

This a few words of praise for a good software house on the other side of the world......they are not ALL bad out there. I wrote to System at the beginning of April on the tried and true principle that if people reply to your first letter promptly then when you send them an order you have a name to relate to or abuse.. Sure enough a letter by return outlining not one method of payment but six combinations ranging from telex, to letter of credit. Also the offer that if I got into gear I would beat the price rise. An offer like that can not be refused so I persuaded the bank to part with a cheque drawn on their

London branch for twenty six quid (21 + 5 p+p). Five quid looked a large amount to pay the for p+p but when the parcel finally arrived 19 days later it was all beautifully packed and bore four pound thirty six pence in stamps. UNFORTUNATELY it or at least the postcard that preceded it from the P.O also announced another stamp EXAMINED BY CUSTOMS who in their wisdom added $23.42 N.Z to my costings ..... C'est la vie.

Inside all the packaging a well cushioned ROM and two twenty page books (one a supplement to other)plus detailed fitting instructions. Also a brief note saying a letter would follow (this in reply to my request for specifications etc for possible review). I must admit my thought was "When it comes.. it comes" and anyway I had a ROM to fit ......

Two weeks later another air parcel (no duty) full of leaflets describing everything that System makes arrived. Because their service and product is good I have included herewith enough to satisfy Wellington group needs but if other centres are interested please send a S.A.E about the size of Beeblet and I will supply on a first come basis. (David Foss, C/O P.O Box 223 TAUPO).

TIPS, HELP GIVEN

For those with printers....

Be careful with address labels backed onto glazed paper. If the wax gets rubbed onto the platen you may not get a signal when the paper runs out. This is a difficult problem as even iso propyl alcohol cannot remove the glaze. It does no good for the print head to be printing onto rubber! To avoid the problem put a spare sheet of paper behind the labels.

(Courtesy Warbiton-Franki, via Jill A.)

To make use of your printer to debug programs:

Jean H.
Put in some diagnostic PRINT statements to print the value of some variables, or tell you that you have arrived at a certain line etc. You want these to appear on the printout only, so as not to mess up the screen when the program is running, and so that you can have a complete 'trace' to study.

Do this as follows. Set the printer on near the start of the program with VDU 2, but follow this with *FX3,2 so that the output is sent to the screen only. (UG p422). When you want to print (on paper), set

*FX3,10 immediately before the print statement, and *FX3,4 immediately after. The Users Guide indicates that *FX3,2 is the command to set the printer only on, but when VDU2 is in the program there needs to be another bit set ON, so we add 8 to the value shown, to get 10.

- 6845 Data

Steven R. mentioned to me in passing that data on the 6845 (UART) can be obtained from AWA (NZ) Ltd.

- FUNCTION KEYS

To save and restore function keys..

I was muttering last month about programs that failed to restore (amoungst other things) my function key definitions. This is bothersome if you have to run many programs in succession.
G.C.F. offers the following:

```
10DIM save_keys% 255
20REM save existing keys
30FOR M%=1 TO 256 STEP 4
40M%!save_keys%=M%!&B00
50NEXT M%
        .
        .
        .
        .
100REM restore key definitions
110FOR M%=1 TO 256 STEP 4
120M%!&B00=M!save_keys%
130NEXT M%
140END
```

HELP!

Tony W. Napier

Tony would like to see a few more elementry articles, such as program debugging techniques. He gives a couple of examples of the sort of problem bugging him:

1. Refer to page 7 of the March Beeblet, where Tony reported that his "Galactic Invaders" would not work if the cursor delete command is used. He continues, "This has got me beat! I have had my listing printed out and am asa sure as I can be that there are no typing errors, and no obvious errors in the magazine listing. If just VDU 23 is entered, the same error occurs, though of course the cursor is not

deleted. The trail ends with a P% which shows a positive value without the VDU 23 and a negative value with the VDU 23. Now why? A clue here is that it doesn't happen with a 1.2 O.S., but the same command works OK in other, generally similar programs with .01 O.S. There is no machine code in this program....is thete something about the command which can, in certain circumstances, upset something else?"

2. A "Bad Mode at line 50" error in the Envelope listing from the May Micro User. Tony is still wrestling with this one.

Richard C. of Nelson writes:

"Bad Dim...." when a program is RERUN. The first time through the program works perfectly, but replying "Y" to "Do you want another ?" results in BAD DIM. CLEAR before dimensioning doesn't work.

Creating files on disk -
As demonstrated in the User Guide

```
X=OPENOUT "DRINKS"
```

produces a file called DRINKS. But if you want to create a set of files say, with a series of alphanumeric names eg. Zn 123, Zn 128 etc then all I get is "NO SUCH VARIABLE.." at the line where I try to name the files. This is using the method shown in "30 Hour BASIC" (Prigmore) of:

```
10INPUT"Name_of_file";f$      ..(or F)
20X=OPENOUT F$(ORF)
```

Any clues on a better (but straightforward) way? (Acorn DFS).

-300 BAUD FOR ELECTRON?

Bert W. wants to slow down his electron-
Exactly how does the BBC slow to 300 Baud? The Electron does not have a 6580 UART but I can connect this externally through the RS432 interface (Electronics and Computing Feb., March 84). However this interface does not vector into the computer itself, but only keyboard to serial printer, unless I can find some magic words.

FAST CIRCLE DRAWING ROUTINE

Last month Peter R. mentioned his interest in fast circle (not cicle) drawing routines. Well, Neil G. produced the following program in double quick time. I have not tested it against Peter's test program yet - has anyone else got some ideas? My offer of a box of cassettes or other similar reward for the best such program still stands, provided I get more than one program!

```
10 REM ****************************
20 REM *                          *
30 REM *   Fast Regular Polygons  *
40 REM *       (and Circles)      *
50 REM *                          *
60 REM *    Neil G. - June 1983   *
70 REM *                          *
80 REM ****************************
90 :
100 REM These routines rely on the
110 REM following equations which
120 REM rotate an original point
130 REM (X,Y) by an angle T (in
140 REM radians, positive clockwise)
150 REM about the origin:
160 REM
170 REM   XNEW = X*COS(T) + Y*SIN(T)
180 REM   YNEW = Y*COS(T) - X*SIN(T)
190 REM
200 REM
210 REM Thus, to draw a regular
220 REM polygon with N sides (e.g.,
230 REM N=3 for triangle, 8 for
240 REM octagon), centred at the
250 REM origin, we start with a point
260 REM at one vertex, rotate that
270 REM point clockwise by 2*PI/N
280 REM radians, draw to it, rotate
290 REM to the next, and so on.
300 REM
310 REM A circle can be drawn by
320 REM drawing a regular polygon
330 REM with sufficient sides.
340 REM (The routines here use
350 REM 20+SQR(radius))
360 REM
370 REM
380 REM
390 REM PROCpoly(X%,Y%,R%,N%) draws a
400 REM regular polygon of N% sides
410 REM and radius R% from the centre
420 REM (X%,Y%) to the vertices.
430 REM
440 REM PROCpoly_fill(X%,Y%,R%,N%)
450 REM fills in a polygon.
460 REM
470 REM PROCcircle(X%,Y%,R%) calls
480 REM PROCpoly with an appropriate
490 REM N%, and PROCcircle_fill
500 REM uses PROCpoly_fill.
510 REM
520 REM The polygon or circle will
530 REM be drawn using whatever
540 REM graphics colouring has been
550 REM specified by GCOL.
560 REM
570 REM PROCpoly uses PLOT 13 instead
580 REM of DRAW, so that using GCOL 3
590 REM will work.
600 REM Unfortunately, the BBC
610 REM triangle drawing routines
620 REM have roundoff problems, and
630 REM GCOL 3 does not work very
640 REM well for PROCpoly_fill.
650 :
660 :
670 :
680 REM Also provided here for
690 REM interest, but not required
700 REM for the other PROCs, is a
710 REM routine PROCmove_origin which
720 REM can be used to add an offset
730 REM to the currently defined
740 REM graphics origin - it uses
750 REM an OSBYTE 160 call to read
760 REM Page &300 so should work
770 REM across the Tube as well.
780 :
790 REM ****************************
800 :
810 REM Here is a short demo of the
820 REM polygon/circle routines
830 :
840 MODE 1
850 FOR I%=10 TO 1 STEP -1
860   GCOL 0,I%MOD4
870   PROCpoly_fill(640,512,50*I%,2+I%
)
880   PROCcircle(640,512,50*I%)
890   NEXT
900 :
910 GCOL 1,2
920 FOR Y%=112 TO 912 STEP 400
930   FOR X%=240 TO 1040 STEP 400
940     IF X%<>640 OR Y%<>512 PROCcirc
le_fill(X%,Y%,90)
```

```
 950 NEXT X%
 960 NEXT Y%
 970 END
 980 :
 990 REM ******************************
1000 :
1010 DEF PROCpoly(X%,Y%,R%,N%)
1020 LOCAL I%,C,S,A,B,AS
1030 A=2*PI/N% : C=COS(A) : S=SIN(A)
1040 A=0 : B=R% : MOVE X%,Y%+R%
1050 FOR I%=1 TO N%
1060   AS=A*S : A=A*C+B*S : B=B*C-AS
1070   PLOT 13,X%+A,Y%+B
1080   NEXT
1090 ENDPROC
1100 :
1110 DEF PROCpoly_fill(X%,Y%,R%,N%)
1120 LOCAL I%,C,S,A,B,AS
1130 A=2*PI/N% : C=COS(A) : S=SIN(A)
1140 A=0:B=R%
1150 MOVE X%,Y%+R% : PLOT 0,0,0
1160 N%=N% DIV 2
1170 FOR I%=1 TO N%
1180   AS=A*S : A=A*C+B*S : B=B*C-AS
1190   PLOT 85,X%+A,Y%+B
1200   PLOT 81,-A-A,0
1210   NEXT
1220 ENDPROC
```

```
1230 :
1240 DEF PROCcircle(X%,Y%,R%)
1250 PROCpoly(X%,Y%,R%,20+SQR(R%))
1260 ENDPROC
1270 :
1280 DEF PROCcircle_fill(X%,Y%,R%)
1290 PROCpoly_fill(X%,Y%,R%,20+SQR(R%))
1300 ENDPROC
1310 :
1320 :
1330 DEF PROCmove_origin(P%,Q%)
1340 P%=P%+FNread_VDU(&C)
1350 Q%=Q%+FNread_VDU(&E)
1360 VDU 29,P%;Q%;
1370 ENDPROC
1380 :
1390 DEF FNread_VDU(X%)
1400 REM Reads 2-byte VDU variable
1410 REM starting at &300+X%
1420 LOCAL A%
1430 A%=160
1440 X%=(USR(&FFF4)AND&FFFF00)DIV&100
1450 REM Propagate sign of number
1460 IF (X% AND &8000)<>0 X%=X% OR &FFF
F0000
1470 =X%
1480 :
```

THE DATE OF EASTER

Anton E. Wellington.

People no longer murder each other about Easter. The English, albeit a rather restrained race, haven't rioted about the calendar since 1752. Mind you, polite society doesn't talk about it freely yet. Minor journals sometimes risk an article. If you're not being read this in a courtroom, best pull the curtains.

The contentious issue is Easter. More exactly, when to have it. The Council of Nicea (325 AD) decreed Easter to occur on the Sunday following the first full moon on or after the vernal equinox. Disagreeing with that is heresy. (Reread the opening sentence.) The Gregorian solution is a triumph of Roman numerals over reality. Firstly, the vernal equinox (equal day and night in spring) is set at March 21. The real equinox can be a day or two earlier, but let's avoid argument. The estimation of Easter then only needs a means of predicting a full moon. Not easy when only integers are allowed, and even the educated don't understand division. Lilius of Naples proposed an acceptible algorithm, and Clavius of Germany verified it and codified it into a 600 page tome that even his fellow Jesuits couldn't poke loopholes in.

Just to give you an idea of the problems, take the length of a year: 365.2422 days. Lilius gave it as CCCLXV days plus I day per IV years, less III days per CCCC years, ie. 365.2425. In the program, that's FNleap(year). Actually, a more accurate rule is to miss out one leap year in 32 (less I day per CXXVIII years), but let's avoid arguement. The lunar period is 29.53088 days, and causes even worse problems.

Those interested can consult a suitable reference, such as the 1911 Encyclopedia Britannica. The most recent English work was written in 1921 by Alexander Philip: The Calendar, Its History, Structure and Improvement. The National Library has NZ's only borrowable copy. Those not interested are very sensible, and ought to stay that way.

The program below could form part of a calendar program. FNleap tells you if its a leap year, PROCdomlet gives the day on which the first Sunday occurs: A if Jan 1, B if Jan 2, etc. PROCeaster calculates Easter. All the variables are meaningful, but even a dictionary may not help.

Epact is the age of the moon on Jan 1st, where 0 means just newly visible, 14 is a full moon, up to a maximum of 29. Paschalmoon is the calculated Easter full moon, which may lag behind the true full moon, but lets not argue. The math formula are derived from Knuth: the Art of Programming, Vol.1. Write to me if you want more detail.

The program takes 42 milliseconds to run, and in 17 seconds, with minor changes, can scan from 1582 when the Gregorian calendar was implemented, to 1984. Alter the program to solve the following problem.

My brother, a year older than I, was also born on Easter Tuesday, but our birthdays are 12 days apart.

When between 1582 and 1984 could the writer have been born?
Answer next month. Anyone got a nastier Easter problem?

```
10 REM ***** Easter Date *****
20 REM by Anton E
30 REM Lilius-Clavius algorithm
40 REM Knuth formula
50 REM Jun.84
60
70 MODE7
```

```
 80 @%=&405
 90 REPEAT
100   PROCinput
110   PROCeaster
120   PROCoutput
130   UNTIL FALSE
140
150 DEF PROCinput
160 REPEAT
170   PRINT '''''"Give a year after 1582 and"'
180   INPUT "before 5000.(anno domini) "year%
190   UNTIL year%>1582 AND year%<5000
200 ENDPROC
210
220 DEF PROCeaster
230 century%=1+year%DIV100
240 goldenyear%=1+year%MOD19
250 solar%= 3*century%DIV4-2
260 PROCdomlet
270 lunar%=(8*century%+5)DIV25-5
280 epact%=(11*goldenyear%-solar%+lunar%+30)MOD30
290 paschalmoon%=FNpasc(epact%)
300 easter%=paschalmoon%+7-(paschalmoon%+3-dominical%)MOD7
310 ENDPROC
320
330 DEF FNpasc(E%)
340 IF E%=25 AND goldenyear%>11 OR E%=24 THEN E%=E%+1
350 =21+(53-E%)MOD30
360
370 DEF PROCdomlet
380 dominical%=7-(5*year%DIV4+4-solar%)MOD7
390 domletter$ = " "+CHR$(64+dominical%)
400 IF FNleap(year%)=1 THEN domletter$ = "s "+CHR$(65+(dominical%)MOD7) + " &"
+ domletter$
410 ENDPROC
420
430 DEF FNleap(Y%)
440 IF Y%MOD4<>0 THEN =0
450 IF Y%MOD100<>0 THEN =1
460 IF Y%MOD400=0 THEN =1 ELSE =0
470
480 DEF PROCoutput
490 CLS:PRINT ''"Gregorian values for ";year%
500 PRINT'"Golden year ";goldenyear%
510 PRINT'"Dominical letter";domletter$
520 PRINT'"Epact ";epact%
530 PRINT'"Easter falls on ";
540 IF easter%<32 THEN PRINT easter%;" March" ELSE PRINT easter%-31;" April"
550 ENDPROC
```

GRAPHICS-GRID CHART

Jeff. H.

Jeff has supplied a concise table setting out the various parameters for each of the seven BBC modes. The parameters are:

GRID -is the X&Y co-ordinates offered for graphics. The grid is finer than very high resolution and individual grid positions cannot be individually lit.
CH -maximum number of characters along the axis.
PIXELS -are the smallest elements of screen that can be individually lit. A character comprises 8*8(=64) pixels. Along a single axis characters * 8 = number of pixels. The total number of pixels on the screen = (X-pixels) * (Y-pixels).
P/G -pixels per grid-number along the axis.
CO -maximum number of colours on the screen simultaneously.
MEM -the number of Kilobytes of memory used solely to map the screen in that particular mode.

MODE	GRID	CH	PIXELS	P/G	CO	MEM
0	X 1280	80	640=163840	1/2	2	20K
	Y 1024	32	256*	1/4		
1	X 1280	40	320= 81920	1/4	4	20K
	Y 1024	32	256*	1/4		
2	X 1280	20	160= 40960	1/8	16	20K
	Y 1024	32	256*	1/4		
3	X 1280	80	TEXT		2	16K
	Y 1024	25	ONLY			
4	X 1280	40	320= 81920	1/4	2	10K
	Y 1024	32	256*	1/4		
5	X 1280	20	160= 40960	1/2	4	10K
	Y 1024	32	256*	1/4		
6	X 1280	40	TEXT		2	8K
	Y 1024	25	ONLY			
7	X 1280	40	TEXT		?	1K
	Y 1024	25.	ONLY			

FOOTNOTE: ? -see teletext U.G. PAGE 150

ROM LISTER

TONY K. AUCKLAND

This program will list the names of all paged ROMs installed in Beeb. It uses an undocumented operating system call to &FFB9. This call reads the contents of a paged ROM. The ROM number is set into the Y register and the address to be read is placed in locations &F6 and &F7. The program reads the title of each ROM starting at address &8009 and loops until it finds a non printable character. It then increments the ROM number and starts again. The program has been tested only on BASIC 2 and MOS 1.2. It will not run on a co-processor due to the fact that the &FFB9 call is not implemented on the tube operating system.

```
   10 REM ROM CONTENT LISTER
   20 REM 20 MAY 1984
   30 REM BY TONY KRZYZEWSKI
   40 REM PLACED IN THE PUBLIC DOMAIN
   50 ?&F7=&80
   60 FORY%=0TO15
   70   Z%=9
   80   PRINT"ROM NUMBER ";Y%;TAB(15);
   90   REPEAT
  100     ?&F6=Z%
  110     A%=USR(&FFB9)
  120     A%=A% AND &000000FF
  130     PRINTCHR$(A%);
  140     Z%=Z%+1
  150   UNTILA%<32 OR A%>127
  160   PRINT
  170 NEXT
```

MAGAZINES AVAILABLE FOR THE BBC

Anne F.

There are several magazines produced in Britain specifically for the BBC. Here is a list of those we know about, plus prices, availability etc. If you worry about price, compare them with the NZ retail price of software. It's not a lot more expensive to buy 12 magazines than to buy ONE game!!

Prices are all in pounds stg. Unless otherwise stated, these are monthly publications.

NAME:	SEA	AIR	ADDRESS
ACORN USER:	?	24	Available from NZ dealers $5.95 (airmail) or from BKT Subscription Services, Douglas Rd, Tonbridge,Kent TN9 2TS 184 pages of articles and advertising. Good, includes articles for Atom & Electron.
THE MICRO USER	20	65	Available from NZ dealers $5.95 (airmail) or from Micro User, Europa House, 68 Chester Rd, Hazel Grove, Stockport SK7 5NY 190 pages of articles and advertising. Possibly the best one out at the moment, with something for all the family
BEEBUG	?	23	The Users group has a bulk sub going, but it doesn't seem too satisfactory. Individuals have no problem. Beebug, Dept 1, 374 Wandsworth Rd, London SW8 4TE 44 pages of A5, plus advertising supplement. Good, perhaps of more appeal to someone not so new to their Beeb or programming.
A&B Computing	14	21.60	A&B Computing, P.O.Box 35 Wolsey House, Wolsey Rd, Hemel Hempstead, Herts HP2 4SS BI-MONTHLY 132 pages of articles, adverts and lists of available software showing name, available from & price. Would have thought that a two-month gap between each issue would allow greater depth than other mags, but has already improved in a year thank goodness. Slightly erratic in the post.
LASERBUG	14	?	LASERBUG,10 Dawley Ride, Colnbrook, Slough, Berks SL3 0QH. Not a patch on the other mags available, and suffers greatly from staff inadequacies I suspect - last issue received July'83 to date! Often see letters from its Editor published in Micro User saying it still exists, just be patient people, I've been sick!

OF INTEREST to Educational 'Institutions' would be:

EDUCATIONAL COMPUTING	Educational Computing Subs, Alan Wells International Ltd, P.O.Box 50, Farndon Rd, Market Harborough, Leics. 52 A3! pages, 22pound airmail. The Beeb has a great hold on schools in Britain, and this publication, whilst it covers all micros, naturally has a lot for the Beeb. Good reviews of the abundance of software, the odd program listing, how teachers and classes have used different programs etc.

WHAT SCREEN SHOULD I GET?

Anne F.

An often-asked question is, what monitor should I get or upgrade to? Assuming all you've been working on are $10 black-&-white tvs, anything would be an improvement. However for most people, the household budget will be a major consideration. Within this constraint, what are the possibilities? If you are only using it for text, a video screen will be adequate. If you want colour, either buy a colour tv, else if you want colour and 80-character text, an RGB monitor. If you're rich and can't make up your mind, buy all three - you can run them all at the same time off one Beeb!

COLOUR: Colour tv or RGB monitor? Whichever you look at, are the colours all clear? Can you distinguish between cyan and white for instance? With the screen plugged into a Beeb, try running the program on p.84 of the User Guide for random triangles. Are the edges straight, can the screen maintain straight edges down the sides as it draws each triangle? If not, there are some adjustments to be made. Some TVs now have a 'RGB' capability ie you can bypass the tuner. This will give perhaps the equivalent of Medium Resolution.

RGB monitor (colour monitors). These are often described as 'High Resolution' and 'Medium resolution'. This refers to the ability of the monitor to display detail 'in detail' or in even more detail. However an advert for a 'Hi-res RGB' for an Apple will probably only be of medium resolution, and the Beeb can use better than that. If you also want 80-character text editing or to look at lots of listings in Modes 3 or 0, not just games-playing, look at the screen with plenty of text in Modes 3 or 0. Are the characters crisp or a bit too fuzzy for your liking?

If you haven't quite the money for this sort of screen ($1300-$2000 easily), think of having two screens - a colour tv or cheaper RGB, plus a video.

VIDEOs:
They come in black-&-white, or green, or amber. Green and amber ones are available at the same price, so your choice can be made on the basis of health - studies showed that green screens were more restful on the eyes than black-white. Later studies showed that amber was even 'better' for minimising eyestrain.

MUSICAL TELETEXT

Neil B. Mt Roskill

This short program is a light-hearted piece of teletext programming, set to music. (Ed - perhaps he'll take pity on us and enlighten us as to the significance of the "20" which crops up several times in the program.)

```
 10 REM::TWENTY::N.E.B. 3/84
 20 MODE7
 30 B=1
 40 REPEAT
 50   FORX=0TO400 STEPB+1
 60     H=X MOD 20:V=X DIV 20
 70     SOUND1,-13,V*H,1
 80     C=B MOD 7
 90     VDU31,V,H+3:PRINTCHR$(128+C)" "B" "
100     NEXT
110   B=B+1
120   UNTILB=21
130 SOUND1,-12,0,20
```

Minutes of the Annual General Meeting of:

THE BBC MICROCOMPUTER USERS GROUP OF NZ INC

(Abridged version)

Held Thursday 28 June 1984 8.15pm at the Correspondence School Staffroom, Portland Cres, Wellington.

1. Apologies: none

2. Minutes of previous AGM: minute book still with auditor, so notes published in May '83 newsletter were read out.
2b. Minutes of SGM - notes published in April '84 Beeblet were read out.

3. Matters arising from minutes:
From SGM, where executive was asked to look further at student rates, members were referred to Motion 9 on the Agenda. Anton advised that Wellington Branch would be waiving / refunding the Branch levy to students

4. Correspondence:
   a) letter from Christchurch expressing concern about

student rates (received before Agenda was prepared).

b) S White, recording her vote for all items on the Agenda.

5. Matters arising from Correspondence: nil

6. The President's Report was distributed to all present. Moved: That the President's report be taken as read - John Bocock; 2nd Jean Heywood; Carried.

Matters arising from President's report: the Editor pointed out that in fact the last three, not two, issues of Beeblet had been 40 pages.

7. The Financial Report and the proposed 1984/85 budget were distributed to all present. Treasurer, Elaine Scoble, advised that the Budget could only be a guesstimate, and assumed that only 100 new members would join this year. Paper and printing costs were expected to rise by up to 30%, including increased size of Beeblet.
Moved: That the financial report be adopted - Elaine Scoble; 2nd: Neil McCormick; Carried.
Moved: That the proposed budget be adopted - Elaine Scoble; 2nd: Anton Erasmuson; Carried.

8. Motion on agenda. Discussion:
did the proposed $30 take into account any reduction for students? No, the proposed reduction was based solely on reduction of costs in mailing out multiple copies of Beeblet.
The Motion was carried.

9. Discussion on item 9 of Agenda:
Christchurch had suggested a figure of $20;
Amendment moved: that the figure of $25 be amended to $20 - Dave Lupton; 2nd Anton Erasmuson.
Discussion: A real incentive was needed to get people to join; a reduction from $30-$40 to $20 was thought more likely to get new members than a drop to $25;
photocopying was too easy; a teacher pointed out that he would be more inclined to encourage some of his students to join if the rate was lowered to $20;

Cost to the Users Group, with the proposed budget already showing a loss had to be offset against the advantages of more members. The Budget included $500 for publicity, this could perhaps be reduced, but it was pointed out that this was including the cost of putting a card in every Beeb and Electron by Barsons, which would therefore reach every Beeb-purchaser.

The cost of the membership tape supplied to new members was part of the $5 joining fee; it was not included as part of an ordinary membership or renewal, which was why this was being deleted from a school membership.

Membership was clarified: it did not apply to one member of a family, but included parents and children, with one vote and one copy of Beeblet per membership paid for.

The amendment was put and carried on voices. There was no further discussion on the Motion as amended: it was voted on and carried on voices.

10. Reimbursement of Editors expenses: Some discussion centred over whether this was all expenses or part honorarium. Terminology was deemed irrelevant; did anyone want the job for less money?
The motion was put and carried.

10b. Moved: That the past editor of the magazine be reimbursed expenses incurred of $500 - Elaine Scoble; 2nd Anton Erasmuson; Carried

11. Discussion: The Registrar of Incorporated Societies had been approached re the proposed name. He advised there was already registered a company of the name "Acorn Computers Ltd", and we would require their approval of our name. The President had contacted the company by phone and had verbal assurance that our change was acceptable, and that if adopted at the AGM, they would supply this acceptance in writing. There was considerable discussion on whether to retain BBC in the name, or as a subtitle.

Amendment to the name moved:"BBC/Acorn Computer User Group NZ Inc" - Elaine Scoble; 2nd Chris Cunningham.

It was moved that the amendment be put to the vote; carried on voices.
The amendment to the motion was voted on and carried.

Moved: That the amended Motion be put to the vote - Graham Ellett; 2nd Anton Erasmuson; Carried.

12. Election of Officers:

Office:	Nominated:	Nominee:	Seconder:
President	Warren Willis	B Wills	B Tillick
Convenor	Anton Erasmuson	E Scoble	D Fung
Secretary	Colin Davis	C Scarf	G Flower
Treasurer	Jean Heywood	E Scoble	N Gordon

These were all nominated unopposed.

Committee	Anne Flower	A Erasmuson	W Willis
	Keith O'Callahan	J Armstrong	M Hoult
	Bruce Wills	G Flower	W Willis
	Neil Gordon	J Heywood	P Hangartner
	David Fung	J Armstrong	A Erasmuson

There being five nominations for the "at least 4 members", it was the wish that all 5 be elected.

13 General Business:

1. Graham Ellett expressed on behalf of everyone the appreciation of the great work done by out-going Treasurer Elaine Scoble.
2. The President extended a welcome to Chris and Jane Cunningham from Tauranga.
3. He also reiterated his thanks to all committee members, especially those now standing down.

The meeting closed at 10.10pm

PRESIDENT'S ANNUAL REPORT

INTRODUCTION

It is a pleasure that I present this report after the first full year of operation of the User's Group.

MEMBERSHIP

While our membership has not risen to the level of penetration amoungst BBC owners that we originally expected, it is now at a satisfactory level at 275, and growing at about ten per week.

BEEBLET

Thanks to the splendid efforts of our Editors, Anne Flower and Bruce Wills, our monthly newsletter is now firmly established amoungst the computer literature of ENZED. Improvements have been achieved in both content and production, and the size has been increased to 40 pages for the last two issues.

SERVICES TO MEMBERS

When the group was first formed, a number of areas were identified in which support for members was needed. As the opportunities arose some of these services were offered, with varying degrees of success. The Beebug bulk subscription, for example, required a lot of time and effort on the part of Elaine Scoble, but the end result was not particularly satisfactory because of the very small margins for savings and late arrivals from the UK. The C-10 cassettes are still popular and the efforts of Anton Erasmuson in administering this part of the operation are appreciated. Thanks also to Jill Armstrong for her part in the printer, disc drive and monitor deals.

LOCAL GROUPS

The last 12 months have seen local activities commence in Hamilton, Tauranga, Hawkes Bay, Taupop and Christchurch, in addition to the meetings and workshops being run in Auckland and Wellington. We recognise the importance of local activities to our members and are keen to see groups of members set up regular activities in Dunedin and Invercargill.

MONEY

We have gone through our first full year with our income and expenditure nicely matched. The credit for this is largely due to the efforts of Elaine Scoble, our Treasurer. The decision to recommend an increase in the membership fee was not taken lightly, but was found to be necessary to support the increased costs that are incurred in the production of Beeblet.

PEOPLE

My thanks to all who have served on the committee during the 1983/84 year. Your efforts have been appreciated by the members at large. Special thanks are due to both Gavin and Anne Flower, whose combination of enthusiasm, talent and hard work has sustained the group in many facets of its activities.

CONCLUSIONS

Finally, I ask all members to think seriously about the direction that the User Group is taking. If it is not what you want, need or expect, then make your views known either to the AGM or via the pages of Beeblet. Better still, join the Committee and have a direct say in how the organisation is run.

Warren Willis
President 1983/84

BUDGET 1984/85

INCOME	Memb. Fees	500		
	Subsciptions		12,000	
	Advertising		880	
	Profit on Enterpr.		200	
	Casual Mag. sales		1500	
				15,080
EXPENDITURE				
MAGAZINE COSTS:	Printer	9,800		
	Postage	1,000		
	Labels	250		
	Editor's Exp.		1,500	
MEMBERSHIP COSTS:	Stationary	400		
	Printing, Postage	400		
	Welcome Tapes		300	
PUBLICITY:	Magazine, Cards	500		
STATIONARY:	Envelopes	200		
	Other	500		
MEETINGS:			300	
				15,150
BUDGETED DEFICIT			70	

RANDOM ACCESS FILING

Reviewer Anne F.

Clive Morris. Introduction to Random Access Filing on the BBC micro. 120 p plus 40-track disc. Revised Edition From: The Computer Room, 206 Mani St, Newthorpe, Notts. ~12.50 + ~3.50 airmail + ~1.25 80-track disc. but see below!

There are plenty of programs around to set up files, databases etc, which are all tape-based. They are disc-compatible, but do not use other advantages of a disc system; instead insisting on only one file open at a time, and only working with as much data as will fit in the Beeb's memory. This book sets out to introduce you to some of the ideas and practices of a disc-based system.

There are two major ways of organising files: one owes its existence to the reluctance of paper tape-punchers to punch any more than they had to, and allows fields of variable length. The second is also as old as the electronic hills, and insists on setting the maximum length of each field, and saving that length, regardless of how much data is really in the field. Both have their advantages and disadvantages.

This book only deals with the latter type. It assumes some knowledge of BASIC, but does help you through files - what they look like, how different types of data are stored etc with very brief programs to illustrate each point. I like its habit of spelling out the whys and wherefores - you are expected to think before you develop your own system, and you will be shown what happens when you don't plan ahead - and how to get around the problem in some cases. Byte pointers, dummy records, ... other jargon phrases are explained as you work through setting up a small personnel file and making changes to it. Good stuff for an Introduction, and easy to follow. Uses of an Index file could have been expanded, but at least you have a starting point. The only section on sorting is directly related to use of an Index file, but since there are plenty of sorting routines available, this is not an appalling omission.

After the first 30 pages of introduction, the next 60 are devoted to listings and explanation of the programs on the accompanying disc which set up a Stock file, and a Personnel file. They are offered to illustrate the use of points previously discussed, but could be used as they are, or modified to suit your needs. The listings are REMless, but explanations are on the facing page. It is this section of the book that I have some reservations about.
1. The author takes the trouble to include some error-trapping. Good. But when it requires a REM within the program saying 'Do Not Renumber' because it is checking the line that the error occurred in, I am not happy. In the particular instance, the routine checks to see

if an error occured while it was writing to the file - this is in a single range of line numbers - and prints out a warning that your file may be corrupted. I would rather see two extra lines of code inserted: at the beginning "error%=1" and at the end, "error%=0" then PROCerror testing the value of error% rather than the ERL. This is especially important as you are encouraged to make your own alterations to the programs to suit yourself.

2. Again, if you are going to modify or understand how these programs work, take a pencil and draw lines linking each GOTO to where it goes. Fortunately, they are fairly apparent and uncomplicated. The two worst sections of code for this are, thank goodness, chunks you won't be altering - PROCdate, and PROCinput which simply checks that the Input was numeric and not alphabetic.

All the listings are on the accompanying disc, so there's no typing. The programs also make some use of colour (hooray!) For a sample of use of disc files, they are ok; as examples of "good programming" there are some deficiencies, but they're still not useless. I would like to have seen some flowcharts showing the relationship between programs for each system, for better understanding of their interaction.

The final section gives space to the importance of Security, good Backup, alterations to take advantage of dual disc drives, and the use of overlays. Don't raise an eyebrow at the suggestion of 3 copies of each program and file for backup - if you are backing up one disc from another on a dual drive, it only requires the thermostatically - controlled heater in another room but on the same electrical circuit as your Beeb to switch on, blow the fuse, and under a few dreadful circumstances you will have corrupted at least one of your discs - possibly both. At least with a number 3 disc you can redo the last few hours work, rather than the whole year's work!

Overall, this is a reasonable introduction to random access filing for the ignorant, despite the coding niggles above. You will get your money's worth; to get anything better for learning you will also have to pay much more.

The Users Group is prepared to make up a 'bulk' order for this book, reproducing the disc, within NZ with permission. If you are interested, send us NZ$27.00, quoting your membership number, by 31 August 1984. This price does not allow for any possible devaluation; if $27 is inadequate, we will ask you for the balance!

As an aside, Computer Room also offer a Utilities disc containing 'Discmap' and a 'Deleted File Recovery' program. The first maps out the contents of your disc, the second allows you to retrieve all or part of deleted Basic or machine code programs. It's ~8.95 for disc and 1documentation, 2plus 2p&p... 2

POUNDING PRINTERS

FOR THE APPROXIMATELY 50% OF OUR MEMBERSHIP WHO HAVE PRINTERS

Anne F.

with detours through "ASCII", graphics and hex for those of you who may or may not have printers.

The printer is a computer (There you are, Neil - happy now?) That is, you can program it to do what you like within its capabilities. One character people often want is the pound sign (£), since pressing the £ key on the Beeb does not always produce a £ on your printout.

Some printers have alternate character sets for different countries. In a lot of cases, the # symbol can be reset to produce a £. Such alternates may be "hardware selectable" - you physically set a switch in your printer - or "software selectable" - you send some codes to the printer which are only effective until you switch the printer off at the mains or send some resetting codes to the printer.

In Beeb BASIC using the ESC R code Epson-alikes accept, it would look like this:

```
   10 VDU1,27,1,82,1,3
   20 PRINT"Price is #3.95"
   30 VDU1,27,1,82,1,0:REM reset country set to USA
   40 PRINT"What a #"
```

With any luck, your printer will have printed out:

```
Price is £3.95
What a #
```

This may be fine if you never want listings of machine-code, or use the # symbol at all; but you have to remember to translate at the keyboard, and not press the £ key. Also on-screen editing may take a bit of getting used to, as the Beeb will still think the # is a #, not a £. (Got the energy to redefine it via VDU23,35,...?)

Look through the table of characters available on your printer - it's probably an appendix at the back of your manual (rarely does a printer manual live up to the name 'Users Guide'!). You may find the printer has a £ defined somewhere. For Logitecs and Amusts, it is CHR$129; Seikoshas use CHR$185; doubtless other printers have different places for it.

ASIDE: ASCII

Your Beeb User Guide sets up a table on p490-1 which contains all the characters it has pre-defined. If you look down the column labelled

90 until you get to row 6 across, you will find that 96 is a £ shape.
In Beeb-BASIC you can produce a £ in at least 4 different ways:

```
PRINT"£"
PRINTCHR$96
VDU96
VDU ASC("£")
```

As an exercise, enter this line:

```
VDU79,118,101,114,100,114,97,102,116,32,108,111,111,107,32,111,117,116
,10,13
```

Is it any different from a PRINT command? (leaving out the 10,13 at the end would have the same effect as a ";" at the end of the PRINT command.) Imagine having to program like this all the time, instead of the 'user-friendly' PRINT statement.

BSIDE - back to the main text now:

If your printer has a £ with an ASCII value greater than what is on your Beeb's keyboard, you can get at it like any other special character with:

```
PRINT"Price is ";CHR$129;"3.95"
```

[If you are using Wordwise, they have a handy command to convert ASCII 96 to whatever you want, so:
f1DP129f2 at the beginning of your text means you can press the £ on the keyboard and still get the printer to print out its CHR$129 instead!]

NO POUND IN YOUR PRINTER'S CHARACTER SET:

Bit Graphics!!!
I took a long time to realise that this was a variation on the user-defined characters available in the Beeb! (ie the VDU23,... command)
As an experiment, define CHR$224 as a £:

```
VDU23,224,&1C,&36,&30,&7C,&30,&30,&7E,&00
```

Try it out:

```
PRINTCHR$224+CHR$96+CHR$224   or   VDU224,96,224
```

To define a Beeb character you have your 8x8 dots shape in front of you (graph paper?), oriented as you expect to see it. ie top left is top left, and North is ↑ .Printers however require you to define your shape with a different top left - North is ←thataway←. You are now looking at a shape sideways. For the same £, but produced by the printer, the data looks like this:

```
&00,&48,&7E,&7F,&49,&4B,&42,&00
```

For comparison, define a Beeb CHR$225 with this data, then display it:

```
VDU96,224,225;225
```

(to be used for the purchase of sideways ROMs, of course!!)

Now you've tried it out in Beeb BASIC, how about getting it out to the paper in your printer? (The printer in fact is not limited to 8 rows of dots in its bit-graphics commands.)

According to manuals, Epson-alikes program "single-bit graphics" via the ESC K command; CItohs via ESC S; Seikosha via ESC POS. All these printers require further information to know how many rows you are defining - here we are wanting 8; there is usually a limit of several hundred rows of dots across a line, so our 8 are not going to give it problems.

Translating ESC K + n1 + n2...

```
VDU1,27,1,75,1,0,1,8,1,&00,1,&48,1,&7E,1,&7F,1,&49,1,&4B,
1,&42,1,&00
```

Translating CItoh ESC S +n3+n2+n1+n0...

```
VDU1,27,1,83,1,48,1,48,1,48,1,56,1,&00,1,&48,1,&7E,1,&7F,
1,&49,1,&4B,1,&42,1,&00
```

All this works beautifully from Beeb BASIC, and you can define anything you like so long as you tell it how many numbers to expect; but I still can't get bit graphics-type codes through Wordwise properly. Consequently the £ symbol throughout this article was produced by resetting a switch in my printer! and pressing $ (there's another reason for not using the DP command, peculiar to the software used to do proportional spacing etc here!)

If your Epson-alike *implements the* ESC Y *command, you don't have to* use bit graphics, but can redefine a character on the keyboard to be what you want. Note that this command expects 9 rows of dots, so give it an extra "&00" either at the beginning or at the end of the data - whichever looks nicer to you.

Thanks are given to people for copies of printer manuals and codes:
Martin, Dunedin for Seikosha GP100A
Anne E, Wgtn for Mannesman Tally
Apologies for remembering your face but not name, Wgtn for Amust-80DT; and also to Anton who swapped printers one weekend so I could try out Epson-alike codes on his Logitec printer (with manual!)

CHINESE ON THE ELECTRON ?

The June 'Micro User' had anovel way of producing on the Beeb using GOTOs. The same thing on the Electron produces columns of Chinese looking characters instead, especially if you are in MODE 2. Fill line 10 with G.10:G.10:G.10:G.10:G.10:G.10:.... until the computer objects, then press RETURN....

LOOPS:

Anne F

A little program in the December Acorn User struck my eye, and 'inspired' this rumination on loops, and what they are for. The listing in question was:

```
 10 REM  ~~~  DRIPS  ~~~
 20 REM   G. BEARD  Aug'83
 30 REM   from Dec'83 "Acorn User"
 40 MODE6
 50 VDU23;8202;0;0;0;
 60 PRINTTAB(6,24)"Press ESC to avoid flooding"
 70 ENVELOPE1,4,45,0,0,6,0,0,1,0,-30,0,0,120
 80 SOUND1,1,0,50
 90 VDU23,224,1,1,3,67,39,23,71,43
100 VDU23,225,0,0,128,196,200,208,194,204
110 PRINTCHR$224+CHR$225
120 GOTO70:REM **** UGH!!-sorry ****
```

Aha! I thought. If you have to press ESCAPE to get out of the program, that's a REPEAT UNTIL loop, disguised by the GOTO. First thing to do, since the author is so apologetic about the GOTO himself, is to change the looping command; replacing the GOTO at line 120 with an UNTIL FALSE; and putting a REPEAT at line 65.

Using LIST07 to display the listing, you can now visualise more clearly the loop the computer is going through:

```
 10 REM  ~~~  DRIPS  ~~~
 20 REM   G. BEARD  Aug'83
 30 REM   from Dec'83 "Acorn User"
 40 MODE6
 50 VDU23;8202;0;0;0;
 60 PRINTTAB(6,24)"Press ESC to avoid flooding"
 65 REPEAT
 70   ENVELOPE1,4,45,0,0,6,0,0,1,0,-30,0,0,120
 80   SOUND1,1,0,50
 90   VDU23,224,1,1,3,67,39,23,71,43
100   VDU23,225,0,0,128,196,200,208,194,204
110   PRINTCHR$224+CHR$225
120   UNTIL FALSE
```

THE MAIN POINT:
What is being done within the loop?
An envelope is being defined each time; the same one!
Characters 224 and 225 are being redefined each time; the same way!

In fact, the only commands that should be repeated each time are SOUND and PRINT, as all that happens in the program is a drip plinks to the ground.

The ENVelope and VDU23s only need to be set up once, at the beginning of the program. After all, why make your computer work overtime repeating things that it doesn't have to. Whilst not critical in this particular program, it does slow the loop down - imagine Rocket Raid redefining each character each time it moved them as well! We'd have much higher scores if the action was slowed down by this method! So to a final listing, where all the definitions are set up before anything appears to happen, and all is renumbered too. It's an amusing little idea; all you need now is to build your Ark (<u>Outside</u> the loop!):

```
 10 REM  ~~~  DRIPS  ~~~
 20 REM   G. BEARD  Aug'83
 30 REM   from Dec'83 "Acorn User"
 40 ENVELOPE1,4,45,0,0,6,0,0,1,0,-30,0,0,120
 50 VDU23,224,1,1,3,67,39,23,71,43
 60 VDU23,225,0,0,128,196,200,208,194,204
 70 MODE6
 80 VDU23;8202;0;0;0;
 90 PRINTTAB(6,24)"Press ESC to avoid flooding"
100 REPEAT
110   SOUND1,1,0,50
120   PRINTCHR$224+CHR$225
130   UNTIL FALSE
140 END
```

WORDWISE TIP

Had problems when underlining a centred heading? To prevend the underlining extending back to the left margin put a space in front of the embedded f1CEf2. I saw this in a Beebug, somewhere...

16 BIT 6502

According to the December 1983 edition of 'Byte', "The Western Digital Center, Mesa, AZ, is preparing to begin test production of the 65816, a 16 bit CMOS version of the popular 6502 microprocessor ..... The processor, which uses an 8-bit data bus and allows 24 bit addressing (to address up to 16 Megabytes of RAM), will come in two versions, one that is pin compatible with the existing 6502 so that it can be used in the same equipment..."

BEGINNER BOOKS?

Usborne Computer Books, Usborne New Technology series.

These two series (found in the children's section of one bookshop, the Computing of another), are an excellent illustrated introduction to various aspects of computers and related technology. Apparently aimed at children, the pictures are colourful and clear, illustrating points very well, and to considerable depth - without leaving poor old mum out of her depth!

What is meant by resolution? p7-8 of "Computer Graphics" give you actual pictures to show you: a cup and saucer are drawn in 2 modes; the higher one with more dots, finer and smoother curves, the lower with more 'steps' and thicker lines.

There are programs at the end of most of the books, written once, but designed to cope with Beebs, Spectrums, Vic20, Apple, Dragon... The listings have quite a bit of 'pseudo-code' to cope with the variations in language in them. For instance, 'gmode' in the listing translates to Beeb 'MODE 1', Dragon 'PMODE3:SCREEN1,0', Apple's 'HGR' - there is a table for you to work from.

The Robotics book gives lots of ideas for computer-controlled activities, and tells you how to make and run your own "simple" robot on wheels, with the required software provided too.

Others in the series provide excellent and comprehensive explanations and introductions to Computer Jargon, Inside the Chip, as well as there being ones on writing adventure games, battle games etc. They are all worth acquiring if someone wants a rudimentary understanding of "What's Inside", or "But can it DO anything" - especially when priced under 5.00 each.

Carolyn HUGHES 'First steps with your BBC micro'. Fontana 1984. 171 pages, $5.50
A book with much to recommend itself.
The author has children, runs a 'Junior' computer club, and doesn't talk down to the reader (adult). This is a beginning programming book, brilliantly illustrated with cartoon-like drawings. 34 very short chapters cover BASIC commands, strings, variables and their uses, and aimed at the novice who would be put off by the 'more professional' approaches of other authors, or who learns better with light relief that is relevant through the pages.

There is a further advantage - the publisher is Fontana, and not some specialist publishing firm, so the price is kept down to a 'proper' price: $5.50!!

MORE ADVANCED?

Stephenson, AP & DJ "Exploiting BBC BASIC" Newnes Microcomputer books 1984. 164p, paperback $21.00
An example of the 'professional' approach. Some quotes:
"Superficially, a procedure resembles the old GOSUB... more sophisticated. In fact the old GOSUB should now be considered an anachronism and forgotten..." (p.30) Later:
"Any device [REPEAT UNTIL] which assists in the elimination of GOTO must be considered a powerful ally in the fight towards good structure ... the addition of the ELSE part of the traditional IF THEN provides a useful weapon for resisting the pressures of the GOTO"

Fighting words. Now a look at the code of the programs offered:

```
 630 ON K% GOTO 640,650,660 ... 790
 640 PROCcreate_file:GOTO140
 650 PROCload_file:GOTO140
 660 PROC...:GOTO140

 790 PROCsearch_5:GOTO140
```

Looks as though AP didn't get his message to DJ, did he?
Throughout, the text is of high standard, giving clear and thorough explanations of some more "useful" programs. The chapter on maths operations includes a verbose method of converting decimal to binary, plus graph plotting, calibration etc. Electronics applications is a chapter aimed more at coping with the equations needed in designing your circuits.
Storing and retrieving information offers some carefully-thought-out approaches to files, and offers listings of well-planned but not-so-well coded programs to set up a file and manipulate it.

Teachers may be interested in the suggestions on setting up multi-choice tests with some minor security, and the listings for it. Sound and animation get 27 pages, and there is an index.

Unfortunately, only the text lives up to the title, and provides some useful pro Beeb BASIC arguments. Not a book to buy, but perhaps one to borrow!

SHIFT-BREAK

Having trouble getting SHIFT-BREAK (auto-boot) to work? The SHIFT key often needs to be held down a long time (compared to the brief tap other keys need). So, hold down SHIFT, use your other hand to press BREAK, release BREAK then release SHIFT. The same applies to CONTROL-BREAK (when the machine gets particularly nastily hung-up).

PRIORITIES:

PRINTER OR WORDWISE? (or View)

from a Hataitai Workshop

I have one, my friend has the other. Do we have to cart machines between the two houses to do our word processing?

No.
Not, that is, if you have OS 1.2
If you have OS 0.1 you may need a little whiting fluid at the end of your printout to get rid of an error message if there is one. (Sorry, can't find someone owning up to still having OS 0.1 to try it out).

<u>HOW TO USE:</u>
1. Prepare your text in Wordwise.
You may use any Wordwise commands other than OCs which will be ignored. So JO, EP, DTs etc will all work. Anyone wanting to expand this program to action OCs is welcome to send in their version.
2. Save your text using <u>option 8</u> on Wordwise's menu.
3. Book time on your friend's printer and Beeb, and take your tape down to him/her.
5. LOAD the program given below, and when it prompts you for the name of your text file, give it your prepared file's name (and have the tape/disc in the right machine for the computer to find it!)
6. Was the printer switched on at the mains? Then it's probably pounding away quite happily, printing out your Great NZ Novel.

OS 0.1 alteration - try:
120 UNTIL FALSE

```
   10 REM  BASIC program to print WORDWISE or VIEW files,
   20 REM  Wordwise commands other than OC ones appear to be executed.
   30 ON ERROR VDU3:CLOSE#P%:STOP
   40 VDU3
   50 INPUT"File to be printed ",P$
   60 P%=OPENIN(P$)
   70 VDU2
   80 REPEAT
   90   A%=BGET#P%
  100   IF A%>&1F AND A%<&7F THEN VDUA%;
  110   IF A%=&0D THEN PRINT
  120   UNTIL EOF#P%
  130 CLOSE#P%
  140 VDU3
  150 END
```

A child's guide to THE BBC MICRO.

By John Dewhurst.
Pub: Cambridge University Press,1983.
Reviewed by Svend A.,Wellington.

This is a very good book for the whole family if you have just bought the Beeb, as the User Guide can be a little bit daunting at first. There are five chapters which are:

- -The keyboard: the functions of the various keys.
- -Getting started: what the computer can do.
- -Special features: such as sound and graphics.
- -Writing programmes: short examples (good for people who are not expert typists!), then exercises.
- -Finding out: special commands and functions.

Each of these have a piece of advice at the start of the chapter, which is usefull to the novice, while throughout the book references to the User Guide are given to get more detailed information. As a ten year old I had trouble understanding the DRAW command until I read this book. It would have been good to have had this book when we first got our Beeb.

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*Hardest level.

HALL OF FAME

USER GROUP MEETINGS

AUCKLAND:-meets 2nd Wednesday of the month, 8.00pm, VHF clubrooms, Hazel Ave, Mt Roskill. ph Dave 770-630 x 518(bus) or Kerry 695-355.

HAMILTON:-last Thursday of the month 4.45pm Waikato Tech B-block staffroom. Ph. Peter, Hamilton 392-500 x 897(bus) or Alison, Morrinsville 6695.

TAURANGA:-every second Wednesday. ph. Chris & Jane 65-076.

HAWKES BAY:-Alternative months Hastings & Napier. Contact Kendall Napier 435-624, Bob Taradale 446-955, Mitch Hastings 778-235.

TAUPO:-CONTACT Dave 84-215.

WELLINGTON:-meets LAST Thursday of the month, 7.30pm, Correspondence School staffroom (1st floor), Portland Cres, Thorndon. ph. Anton 286-289 or Warren 787-005.

CHRISTCHURCH:-fortnightly workshops, Monday 6.30pm at Hagley High School. ph. Michael 582-267.

OTHER CENTRES:- let us know and we will publish details here.

THE NEWSLETTER:

CONTRIBUTIONS:-most welcome. Listings should be sent in on tape or disc.(Tape - 2 copies,one at 300 baud please). A 35c stamp gets your tape / disc returned too. Please include written explanation of listing; text only material welcome too.

DEADLINES:- For a particular issue, the last day for material is the last day of the month prior to publication.

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